Problem A

National Science Olympiad

In the recent National Science Olympiad, a new tie-breaker rule was implemented using time penalties measured in minutes.

The olympiad ran for two days and participated in by N contestants. The i-th participant, whose name is S_i, received A_i points with time penalty B_i on the first day, and received C_i points with time penalty D_i on the second day.

The contestants are ranked based on their total points from both days, with **higher points** being ranked higher. Contestants who receive the same total points will be ranked based on the sum of their time penalties from both days, with **lower penalties** being ranked higher. If there are still ties, they will be ranked based on their name, with the **lexicographically smaller name** being ranked higher.

Your task is to output the name of the contestants ranked from highest to lowest.

Input

The first line contains an integer N ($1 \leq N \leq 100$). Each of the next N lines contains a string S_i ($1 \leq |S_i| \leq 10$), containing uppercase English alphabets, followed by four integers A_i, B_i, C_i, and D_i ($0 \leq A_i, B_i, C_i, D_i \leq 300$) representing their points and penalties from both days.

Output

Output N lines, each containing the name of the contestants, in order from the higher-ranked to the lower-ranked.

Sample Input 1	Sample Output 1
5 ANDI 200 120 150 130 BUDI 170 70 180 170 CUPU 0 300 0 300 DEWA 300 0 300 0 MALANG 0 300 0 300	DEWA BUDI ANDI CUPU MALANG

Explanation of Sample 1: Let us consider the ranks between ANDI and BUDI. Both ANDI and BUDI received the same total points, which is 350, but BUDI is ranked higher because BUDI's time penalty (which is 240) is lower than ANDI's (which is 250).

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